



2010
No. 3
June

Newsletter

Meeting of the IFAC Officers

**Laxenburg, Austria
8 - 10 April, 2010**

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Forthcoming Events

The tradition of convening at the IFAC Secretariat every spring goes back to an initiative of Professor Yoshikazu Sawaragi, President of IFAC from 1978 - 1981. At that time, communication went via letters, telephone calls, telex machines. All these means of communication were either slow or expensive, in particular if you think of the cost of long-distance phone calls at that period. The only face-to-face meetings took place once a year, at the time of the annual Council meeting. It therefore proved to be very valuable to have a further - but informal - meeting of the IFAC Officers at the Seat of the Secretariat. But there was a firm commitment that these meetings would only be used to exchange opinions, discuss developments, look at requirements of an administrative nature, maintain good contact to the Austrian authorities providing and partly funding such excellent secretarial facilities, but definitely not to forestall discussions or decisions within the portfolio of the various IFAC committees and boards. In spite of the onset and development of today's easy ways of communication, these meetings have been continued and took place for the 29th consecutive time this April.



(no model for the dynamic link between the input and output is required), but also does not explicitly demand knowledge of gradients of the output as a function of the input. As such it is ideally suited to deal with practical problems where models are hard to describe, and/or the complexity of gradients may be prohibitive. Examples include systems that achieve maximum brake power in an ABS system, maximum energy transfer in tidal wave energy conversion system, or systems that track satellites without prior knowledge of their orbit by seeking the maximum energy in the received signal beam. We review some of the history; the first attempts can be traced back to the early 1920s; explore the basic idea, some of the many variants, derive the simplest possible method and show the links with classical notions of persistency of excitation, and indeed standard optimization methods. The talk is based on joint work with colleagues at the University of Melbourne, Imperial College and UC Santa Barbara.

Over the years it has also become a tradition to organize a technical lecture at one of Austria's Universities. In the past years, Professor Isidori, Professor Kwon, and Professor Goodall gave lectures at Vienna Technical University. This year, the officers were invited to Johannes Kepler University in Linz, where they were welcomed by Professor Kurt Schlacher, who is not only Secretary of IFAC, but also holds the Chair of Automatic Control and Control Systems Technology at Linz University. He gave a brief overview over the structure of the Mechatronic Institutes. The group was then received by Professor Gabriele Kotsis, Vice-Dean for Research of the University, who also spoke words of welcome before Professor Iven Mareel started his lecture on

The visit to Linz ended with a guided tour through the Institutes of Mechatronics.

Back in Vienna, Professor Isidori hosted a dinner for the newly elected President of the Austrian Academy of Sciences, the Director of the International Institute of Applied Systems Analysis (IIASA) and other high-ranking representatives of international institutions, of Austrian Ministries, the Technical University of Vienna and the Austrian National Member Organization.

The following two days were dedicated to discussions, meetings and the preparation of a draft agenda for the Council- and Related Meetings in Baltimore this June. One item of discussion was

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The Tables of Contents of the IFAC Journals can be found respectively at

- Automatica
<http://www.elsevier.com/locate/automatica>
- Control Engineering Practice
<http://www.elsevier.com/locate/conengprac>
- Engineering Applications of Artificial Intelligence
<http://www.elsevier.com/locate/engappai>
- Journal of Process Control
<http://www.elsevier.com/locate/jprocont>
- Annual Reviews in Control
<http://www.elsevier.com/locate/arcontrol>
- Journal on Mechatronics
<http://www.elsevier.com/locate/mechatronics>

Extremum Seeking Abstract

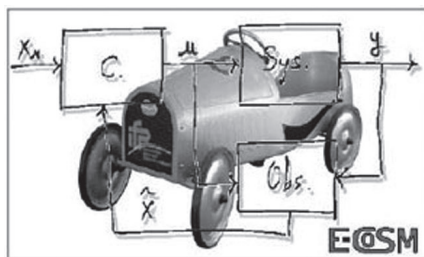
Extremum seeking is a model free adaptive control method whereby the input seeks to optimize in some sense the output of a given plant under the most basic assumption that in steady state there is an input that provides a maximal output. The extremum seeking method is not only model free

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the impact, the international financial situation may have on Federations such as IFAC. This will certainly be a matter that will be picked up at the Council meeting in Baltimore.

It was the general consensus that this type of meeting face to face cannot be replaced by any type of fast electronic communication and will continue to be of great value for the cohesion within the Federation. The same is true also of the annual Council- and Related Meetings which also help to strengthen the bond among people coming from all over the world. Important issues on the agenda of the Council meeting will be, among others, the decision on the venue for the 2017 IFAC World Congress, the discussion of and vote on the proposed major award winners (Quazza, Nichols, High Impact Paper, Industrial Achievement), approval of the Fellow Nominees in 2010 and of course also the financial situation of IFAC and the direction into which technical developments will lead the Federation.

Engine and Powertrain Control, Simulation and Modeling - E-CoSM'09 IFAC Workshop Paris, France 30 November - 2 December, 2009



The workshop E-CoSM'09 was sponsored by the IFAC TC Automotive Control and held at IFP, in Rueil-Malmaison (near Paris, France), from Monday, November 30 to Wednesday, December 2 in 2009. E-CoSM'09 was the second of a conference series initiated by the Engine and Powertrain Control group at IFP, and the first conference was held in 2006 in Paris. This second edition was also organized within the framework of "Les Rencontres Scientifiques de l'IFP" but it was the first to be sponsored by the IFAC Technical Committee on Automotive Control in combination with four other IFAC Technical Committees.

Scope and Aim

E-CoSM'09 examined the most recent developments in the fields of engine and powertrain control and modeling, emphasizing the interplay between control design and validation, on the one hand, and physical modeling and simulation on the other. Its aim was to offer academic and industrial researchers and practitioners working in the automotive control sector an opportunity to meet one another and exchange views and ideas at a relatively small-scale event.

Meeting these aims, the papers and plenary talks that were presented covered a wide area of automotive applications with topics from in-cylinder processes, emission generation, and emission abatement (both in-cylinder and after treatment), up to system level modeling, control, and optimization of hybrid powertrains. Furthermore, lunches and dinners were planned as buffets without seating and this provided an excellent opportunity for networking. In particular the format served as an excellent vehicle for bringing together the participants and allowing interaction and new contacts to be made between academic and industrial participants.

Participants, Technical Program and Papers

A total of 138 attendees from 15 countries joined the conference, with France, Germany, Sweden, UK and USA being the most frequently represented countries. Both university and industry contributed to the following sequence of five plenary lectures that summarized results and open problems:

- Dynamic simulation strategies for PCCI combustion control design
N. Peters, Aachen University, Germany
- Real-time in-cycle engine simulation
A. Noble, Ricardo Consulting Engineers, UK
- Look-ahead fuel-optimal control of heavy trucks
L. Nielsen, Linköping University, Sweden
- Model structure and performance of predictive control in automotive applications,
L. Del Re, Johannes Kepler University, Linz, Austria
- Control of urea SCR systems for diesel applications
M. Van Nieuwstadt, Ford Motor Company, USA

There was a total of 44 papers in the conference which gives a ratio of 3.14 between participants and technical presentations. In the submission and review process the IFAC PaperPlaza tool was used and each paper was reviewed by 3 reviewers on average, and this resulted in an acceptance ratio of 73% on regular papers. In addition to the regular papers a benchmark problem, consisting of an automotive throttle servo, was prepared and solutions called for. Researchers were invited to propose solutions for this problem and 6 solutions were submitted and evaluated.

All papers presented at E-CoSM'09 are hosted and available on-line on the IFAC-PapersOnLine.net website and are thus citable via an ISSN and a DOI. The best papers have been forwarded for consideration for publication in IFAC affiliated journals. A further selection has been proposed to OGST (Oil & Gas Science and Technology- Revue de l'IFP), a bi-monthly journal indexed in the major international bibliographical databases.

In summary E-CoSM was a well prepared and well conducted conference and has served as an excellent meeting point for industry, research institutes, and universities that work on controls of automotive powertrain systems.

The Conference Chairs
Lars Eriksson and Lino Guzzella

Advanced Control of Chemical Processes ADCHEM 2009

IFAC Symposium
Istanbul, Turkey, 12 - 15 July, 2009

ADCHEM 2009 was held on the beautiful campus of Koç University in Istanbul, Turkey during July 12-15, 2009. Following the tradition of the previous ADCHEM symposia held in Toulouse(1991), Kyoto (1994), Banff (1997), Pisa (2000), Hong Kong (2003) and Gramado (2006), ADCHEM 2009 brought together researchers and practitioners to discuss the recent developments in control of chemical, biochemical and closely related process systems. 198 participants from 31 countries attended ADCHEM 2009, including 37 industrial participants.

Both theory and applications were covered under the six tracks

- Process Modeling and Identification
- Advanced Process Control Strategies
- Process and Control Monitoring
- Plantwide Control
- Process Control Applications; and
- Emerging Methods and Technologies

The conference proved that Chemical Process Control is a very active area, where theoretical and computational advances from academia are indeed used and implemented in industry leading to significant economic benefits, and where challenging applications continue to trigger innovative theoretical research and development of methods and algorithms. This fruitful interaction was underlined by the sponsoring of a Young Author Award by Bayer Technology Services, Germany. The award was given to Steffen Heldt from Linde AG.

ADCHEM 2009 could not have been organized without the help of many people, including the Industrial Co-Chair Jorge Mandler, the track chairs and IPC members, the NOC members, the authors and reviewers, the IFAC committees „Chemical Process Control“, „Non-linear Control Systems“ and „SAFEPROCESS“, Koç University, our industrial sponsors, the IPC coordinators Christian Sonntag and Thomas Tometzki, and the NOC coordinator Nur Digidem Burak. We hope that ADCHEM 2009 has built scientific, social and cultural bridges among its participants.

Yaman Arkun, NOC Chair
Sebastian Engell, IPC Chair

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Advances in Control Education - ACE'09

8th IFAC Symposium

Kumamoto, Japan, 21-23 October 2009

The eighth IFAC Symposium on Advances in Control Education (ACE09) was held in Kumamoto, Japan organized by Kumamoto University and the Kumamoto National College of Technology in cooperation with the Society of Instrument and Control Engineers (SICE), the Institute of Electrical Engineers of Japan (IEEJ), the Japan Society of Mechanical Engineering (JSME), the Japan e-Learning Association (JeLA) and Research for Intelligent System Technology in Kumamoto (RIST).

The Symposium on Advances in Control Education, sponsored by the Technical Committee on Control Education of IFAC (EDCOM), is held every three years. This is in fact the eighth event in this series, the last having been held in Madrid, Spain in 2006 and chaired by Prof. Dormido.

From the beginning, the ACE Symposium has been a meeting point where new ideas on control curricula development, new control related software, new laboratory experiments, new paradigms of virtual and remote experimentation as well as continuing education and training are presented. The objectives of the present ACE09 Symposium have again been to provide an international forum for the discussion of recent developments and advances in control education and to ensure that the knowledge of and experience in new methods and approaches is shared throughout the control community.

ACE09 was supported by a large International Program Committee with about 60 members from 26 countries. 75 submissions were received and

only 59 good quality papers were selected for presentation at the Symposium.

The core of the Symposium was the fifty nine papers which were presented by their authors in thirteen oral sessions. These contributions covered all technical areas of control education, and provided an accurate picture of the state of the field at the present time. The following topics were addressed: virtual labs, teaching aids for control engineering (2 sessions), challenges for control engineering curricula, virtual and remote labs, inverted pendulum, e-learning in control engineering (2 sessions), continuing control education in industry; the following four invited sessions dealt with: new trends of training engineer with e-learning, "Kosen" system (a formal Japanese education system), control education using inverted pendulum and remote laboratories. The number of no-show papers was only two. This represents only four percent of the Symposium program, which is an improvement compared with previous Symposia.

The technical program of the Symposium included two plenary lectures given by prominent professors very well known in our field. The first one, entitled "The Role of Design in Control Engineering Education" presented by Prof. Graham C. Goodwin, from the University of Newcastle (Australia) outlined the role of design in tertiary education linked to professional practice. The second lecture "KOSEN: 5-year Engineering Education Age 15" presented by Prof. Mitsuhiro Araki, who is currently President of Matsue College of Technology, described the

"Kosen system". It is a formal Japanese education system that started in 1962 during the period of the rapid economic growth of Japan, with the aim to respond to the needs of industries. The students are accepted to Kosen colleges at the age 15 and engage in intensive engineering education for five years up to the age 20.

During ACE09 the IFAC Technical Committee on Education held an open meeting with all attendants to the Symposium. This session of the EDCOM Committee, chaired by Bozenna Pasik-Duncan, provoked stimulating discussion on numerous challenging questions related with the future activities in the area of control education. To conclude, it can be said that the IFAC ACE09 Symposium has had a satisfactory level of attendance, with a very active participation in most technical activities, and the general evaluation we have gathered from attendees' comments has been very positive.

Of course, the success of the ACE09 technical program is the result of the effort of many people. On behalf of the IPC, I would like to thank all the authors, IPC members, reviewers, and participants for their contributions, and also the session chairs and co-chairs for conducting the technical sessions and providing valuable feedback on their development. We are also grateful to the many volunteers who have contributed to its organization, the Symposium Secretariat, the General Chair of the Symposium Prof. Shigeyasu Kawaji, and my colleague Prof. Yasuhiro Ohyama who was an excellent IPC vice-chair.

Sebastián Dormido Bencomo
ACE09 IPC Chair



FORTHCOMING EVENTS

(2010, 2011*)

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Title	2010	Place	Further Information
IFAC Workshop Internet Based Control Education - (IBCE'10)	June 27 - 29	Orlando FL, USA	http://ibce10.epfl.ch/ e-mail: ibce@groupes.epfl.ch
American Control Conference - in cooperation with IFAC -	June 30 July 02	Baltimore MD, USA	http://www.a2c2.org/conferences/acc2010/
IFAC Workshop Intelligent Manufacturing Systems - IMS 2010 in conjunction with	July 01 - 02	Lisbon Portugal	http://www.ims10.ipb.pt/ e-mail: ims2010@uninova.pt
IFAC Workshop Advanced Maintenance Engineering, Service and Technology - A-MEST	July 01 - 02	Lisbon Portugal	http://www.ims10.ipb.pt/ e-mail: ims2010@uninova.pt
IFAC Symposium Dynamics and Control of Process Systems - DYCOPS 2010	July 05 - 07	Leuven Belgium	http://www.dycops2010.org/ e-mail: to be announced
IFAC/(EFB) Symposium Computer Applications in Biotechnology - CAB 2010	July 07 - 09	Leuven Belgium	http://www.cab2010.org/ e-mail: to be announced
IFAC Symposium Large Scale Systems: Theory and Applications - LSS 2010	July 11 - 14	Villeneuve d'Ascq, France	http://lss2010.ulbsibiu.ro/ e-mail: p.borne@ec-lille.fr
IFAC Symposium Advances in Automotive Control - IFAC- AAC 2010	July 12 - 14	Munich Germany	http://www.vdi.de/aac2010 e-mail: ringelmann@vdi.de
IFAC Symposium Automation in Mining, Mineral and Metal Processing - IFACMMM2010	August 02 - 04	Cape Town South Africa	http://www.ifacmmm2010.com/index.html e-mail: info@ifacmmm2010.com
10th FISITA/IFAC Intl. Symposium Advanced Vehicle Control - AVEC10	August 22 - 26	Loughborough UK	http://www.lboro.ac.uk/avec10 e-mail: avec10@lboro.ac.uk

FORTHCOMING EVENTS (ctd)

Latin American Control Conference LACC - in cooperation with IFAC -	August 24 - 27	Santiago Chile	http://www.acca2010.usach.cl e-mail: congreso.acca2010@usach.cl
IFAC Workshop Adaptation and Learning in Control and Signal Processing - ALCOSP 201 in conjunction with	August 26 - 28	Antalya Turkey	http://www.ifacworkshops.org/ e-mail: ifacworkshops@boun.edu.tr
IFAC Workshop Periodic Control Systems - PSYCO 2010	August 26 - 28	Antalya Turkey	http://www.ifacworkshops.org/ e-mail: ifacworkshops@boun.edu.tr
IFAC Workshop Discrete Event Systems - WODES 2010	August 30 - September 1	Berlin Germany	http://www.wodes2010.org/ e-mail: info@wodes2010.org
IFAC Symposium Analysis, Design, and Evaluation of Human-Machine Systems- HMS	August 31 - Sept. 03	Valenciennes France	http://www.univ-valenciennes.fr/IFACHMS2010/ e-mail: contact-ifachms2010@univ-valenciennes.fr
IFAC Symposium Nonlinear Control Systems - NOLCOS 2010	September 01 - 03	Bologna Italy	http://www.nolcos2010.unibo.it/ e-mail: nolcos2010@morettieventi.it
IFAC Symposium Intelligent Autonomous Vehicles - IAV 2010	September 06 - 08	Lecce Italy	http://iav2010.unile.it/ e-mail: iav2010@unile.it
IFAC Symposium Automatic Control in Aerospace - ACA 2010	September 06 - 10	Nara Japan	http://www.space.t.u-tokyo.ac.jp/aca2010 e-mail: ifac-office@space.t.u-tokyo.ac.jp
IFAC Conference Management and Control of Production and Logistics - MCPL-2010	September 08 - 10	Coimbra Portugal	http://www.dei.uc.pt/MCPL2010 e-mail: mcpl2010@dei.uc.pt
IFAC Workshop 2nd Estimation and Control of Networked Systems	September 13 - 14	Annecy France	http://necsys2010.inrialpes.fr/ e-mail: carlos.canudas-de-wit@gipsa-lab.inpg.fr
IFAC Symposium Mechatronic Systems	September 13 - 15	Boston, MA USA	https://engineering.purdue.edu/IFACMech10/ e-mail: paden@engr.ucsb.edu
IFAC Symposium System Structure and Control	September 15 - 17	Ancona Italy	http://leibniz.diiiga.univpm.it/SSSC10/ e-mail: to be announced
IFAC Conference Control Applications in Marine Systems - CAMS 2010	September 15 - 17	Rostock Germany	http://www.cams2010.uni-rostock.de e-mail: cams2010@uni-rostock.de
IFAC Workshop Intelligent Control Systems - WICS 2010	Sept. 29 - October 02	Sinaia Romania	http://wics2010.ics.pub.ro/ e-mail: wics2010@ics.pub.ro
IFAC Workshop 50 Years of Nonlinear Control and Optimization	Sept. 30 - October 01	London UK	http://cap.ee.ic.ac.uk/~astolfi/IFAC_HW_10/ e-mail: to be announced
IFAC Symposium Telematics Applications - TA'2010	October 05 - 08	Timisoara Romania	http://www.upt.ro/ta2010 e-mail: office.ta2010@aut.upt.ro
IFAC Workshop Programmable Devices and Embedded Systems - PDeS	October 06 - 08	Pszczynne Poland	http://pdes.polsl.pl/ e-mail: pdes@polsl.pl
IFAC Workshop (4th) Fractional Differentiation and its Applications - FDA'10	October 18 - 20	Badajoz Spain	http://ees.fberg.tuke.sk/fda10 e-mail: fda10@tuke.sk
IFAC Workshop Supplemental Ways for Improving International Stability - SWIIS	October 27 - 29	Prishtina Kosovo	http://www.ubt-uni.net/swiis e-mail: ehajrizi@ubt-uni.net
CASIM/IFAC Conference Automation in the Mining Industry - AUTOMINING 2010	November 10 - 12	Santiago Chile	http://www.automining2010.com e-mail: automining@automining2010.com
IFAC Conference Modelling and Control in Agriculture, Horticulture and Post-Harvest Processing AGRICONTROL 2010	December 06 - 08	Kyoto Japan	http://elam.kais.kyoto-u.ac.jp/agricontrol2010/ e-mail: agrictrl@energy.kais.kyoto-u.ac.jp
Title	2011	Place	Further Information
Intl. Conference Computer Aided Systems Theory - EUROCAST 2011	February 06 - 11	Las Palmas de G.C Spain	http://www.iucte.ulpgc.es/spain/eurocast2011/ e-mail: eurocast@iucte.ulpgc.es
IFAC WORLD CONGRESS - 18th Milano 2011	August 28 - Sept. 02	Milan Italy	http://www.ifac2011.org/ e-mail: info@ifac2011.org

* A complete list of the forthcoming events will again be published in the next issue of the Newsletter, or is available on the website at <http://www.ifac-control.org>